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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/654,949	09/01/2000	Peter Brittingham	128534-01801 (07028591)	7078
26565 7590 05/13/2010 MAYER BROWN LLP P.O. BOX 2828 CHICAGO, IL 60690				
EXAMINER WILLIAMS, ROSS A				
ART UNIT 3714		PAPER NUMBER		
NOTIFICATION DATE 05/13/2010		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ipdocket@mayerbrown.com

### Office Action Summary

**Application No.**

09/654,949

**Applicant(s)**

BRITTINGHAM ET AL.

**Examiner**

ROSS A. WILLIAMS

**Art Unit**

3714

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 9/9/09.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 13-16, 19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 13-16, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

Claims 1 – 5, 13 – 17, 19 and 20 are currently pending.

***Response to Appeal Brief***

In view of the Appeal Brief filed on 3/4/09, PROSECUTION IS HEREBY REOPENED. A new ground of Rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Dmitry Suhol/

Supervisory Patent Examiner, Art Unit 3714

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 – 5, 13 – 17, 19 and 20 are rejected under 35 USC 101 as being directed to non-statutory subject matter because these are method or process claims that do not transform underlying subject matter (such as an article or materials) to a different state or thing, nor are they tied to another statutory class (such as a particular machine). See *Diamond v. Diehr*, 450 U.S. 175, 184 (1981) (quoting *Benson*, 409 U.S. at 70); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978) (citing *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876)). See also *In re Comiskey*, 499 F.3d 1365, 1376 (Fed. Cir. 2007) (request for rehearing *en banc* pending). The claims merely relate to the obtaining of a test item, the creation of a test item model and generating a test item variant of the test item.

However it should be noted that the processes must expressly tied to another statutory class (such as a particular apparatus) or transform underlying subject matter (such as article or materials) to a different state or thing. If neither of the requirements is met by the claim the method is not a patent eligible process under 35 USC 101. The claims must positively recite the other statutory class (thing or product) to which it is tied, for example by identifying the apparatus that accomplishes the method steps or

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positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 1-5, 13-16, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweitzer et al. (US 6,018,617) in view of "Automatic Generation of Test Oracles- From Pilot Studies to Application" written by Feather et al. published 1999.**

[Claims 1, 5, 14]: Regarding Claims 1, 5, and 14, Sweitzer discloses obtaining a test item (i.e., problem). See Abstract. Sweitzer discloses creating a test model by

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identifying elements of the test item to be variabilized and variabilizing the elements to create variables in Col.12: 34-37:

```
The variation rules may assign substitution variables
(variables used in the problem layout) or temporary
variables (variables used only within the variation rules).
```

Sweitzer discloses defining the variables in Col.12: 49-50:

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Substitution variables are defined using the variation rule
syntax, which is not case sensitive.
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Sweitzer discloses generating a test item variant (i.e., instance of a problem) of the test item by assigning values to the variables using a simultaneous constraint solver, wherein the simultaneous constraint solver resolves one or more constraints pertaining to variables in Col.12: 41-46:

```
To produce an instance of a problem 32, the list of
variation rules is evaluated sequentially from top to
bottom. If a constraint is not satisfied, the current pass
through the list is abandoned and evaluation restarts from
the top of the list. A valid instance of the problem
results when the end of the variation rule list is reached.
```

Sweitzer discloses the use of a constraint solver that solves multiple constraints in a sequential top-down fashion. Thus Sweitzer does not specifically disclose a constraint solver that solve for will simultaneously solve multiple constraints at the same time. However, Feather discloses a method of solving for multiple constraints simultaneously. Specifically Feather teaches "The planner has to be able to generate plans; its constraint language is crafted to simultaneously ease the expression of certain

constraints, and limit the form of the expression to those that it can readily handle.”  
(Feather page4, col 2, par 1).

It would be obvious to one of ordinary skill to modify Sweitzer in view of Feather to provide a system or method that uses a constraint solver that is able to satisfy or simultaneously solve for multiple constraints at the same time. The solving of multiple constraints would obviously provide a reduction in processing time when attempting to solve the constraints.

[Claims 2, 15]: Regarding Claims 2 and 15, Sweitzer discloses wherein said model creation further comprises specifying constraints that define a relationship among the variables in Col.12: 50-53:

This language supports basic mathematical operations, **relational** comparisons, and logical combinations using general expressions and operator rotation. Function (procedure) references provide extended capabilities.

[Claims 3-4,13,16]: Regarding Claims 3-4,13, and 16, Sweitzer discloses the step of accepting and retrievably storing the test item variant and the test item model (i.e., instance of a generalized problem) in Col.11: 57-63 and Col.12: 24-27, 45-46:

As was discussed above, problem content is created by an author who is typically a professional programmer; but may be the end user of the test operating software running on the personal computer 13. The content of the problem is expressed in machine-usable form using the authoring tool 30, which stores each problem 32 in a separate file on disk. Problems 32 are organized for easy retrieval in a single disk file, i.e. one or more problem books 34. The set of programs that support collecting problems 32 into the problem books 34 is referred to as the build tools 70.

Each problem 32 is described by a few key parameters. These parameters assist the user in selecting problems 32 to include in a worksheet 50. Problems 32 within each problem book 34 are grouped into objectives. Objectives are grouped into sections and sections are grouped into chapters. Problems are not necessarily self-contained. They may refer to external objects, which are included in the representation at print time. Multiple problems can include the same external object. These objects are stored within the problem book 34 file.

The authoring tool 30 and print engine 90, discussed in greater detail below, use variation rules which are stored in the variation rules module or engine 80 (FIG. 8) and define instances of a generalized problem.

A valid instance of the problem results when the end of the variation rule list is reached.

[Claim 19]: Regarding Claim 19, Sweitzer discloses wherein variables can be defined by values which are variables (e.g., mathematical expressions) in Col.12: 30-32:

Variables may be replaced with numbers, text, graphics, or mathematical expressions.

[Claim 20]: Regarding Claim 20, Sweitzer discloses wherein the variables are new variables (e.g., substitution variables, temporary variables) for which new constraints are defined as needed in Col.12: 34-38:

The variation rules for a problem 30 are an ordered list of definitions and constraints expressed in a simple language. The variation rules may assign substitution variables (variables used in the problem layout) or temporary variables (variables used only within the variation rules). The variation rules may also impose constraints on the relationship between variables.



**Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sweitzer et al. (US 6,018,617) in view of "Automatic Generation of Test Oracles- From Pilot Studies to Application" written by Feather et al. circa 1999.**

[Claim 17] Sweitzer does not disclose expressly wherein the test item model constraints are simultaneously solved using PROLOG IV and Test Creation Assistant constraint language. Instead, Sweitzer discloses the use of C++ in Col.6: 28-39 and variation rules language to simultaneously solve test item model constraints in Col.10: 61-63.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to use C++ and variation rules language to simultaneously solve test item model constraints because Applicant has not disclosed that using PROLOG IV and Test Creation Assistant constraint language, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Sweitzer's invention, and applicant's invention, to perform equally well with either the languages taught by Sweitzer or the languages claimed by Applicant because both languages would perform the same function of generating multiple instances of a test item.

Therefore, it would have been prima facie obvious to modify Sweitzer to obtain the invention as specified in claim 17 because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the prior art of Sweitzer.

***Response to Arguments***

Applicant's arguments, see Appeal Brief, filed 3/4/09, with respect to claims – 5, 13 – 17, 19 and 20 have been fully considered and are persuasive. The Final Rejection of claims – 5, 13 – 17, 19 and 20 has been withdrawn.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROSS A. WILLIAMS whose telephone number is 571-272-5911. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ronald Laneau can be reached on 571-272-6784. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dmitry Suhol/

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Supervisory Patent Examiner, Art  
Unit 3714

/R. A. W./  
Examiner, Art Unit 3714  
5/7/10